

REMARKS/ARGUMENTS

Favorable reconsideration of this application, as presently amended and in light of the following discussion, is respectfully requested.

Claims 1-13 and 41-44 are presently active in this case, Claims 1, 5, 8 and 13 amended, and Claims 14-40 canceled and Claims 41-44 added by way of the present amendment.

In the outstanding Official Action, Claims 14-40 were withdrawn from consideration as being directed to a non-elected invention; the Declaration was indicated as defective; Claim 1 was rejected as anticipated by any one of U.S. Patent No. 5,405,480 to Benzing et al., U.S. Patent No. 5,681,418 to Ishimaru, U.S. Patent No. 5,304,282 to Flamm, U.S. Patent No. 5,560,844 to Boulos et al., U.S. Patent No. 4,431,901 to Hull, or U.S. Patent No. 5,680,014 to Miyamoto et al.; and Claims 2-13 were rejected as either anticipated by any one of these cited references, or unpatentable over various combinations of these cited references, in some instances combined with U.S. Patent No. 5,584,971 to Komino.

With regard to the objection to the Declaration, Applicants respectfully submit that the Declaration filed June 24, 2003 is in compliance with PTO Rules. Specifically, MPEP Section 602.05 indicates that the date of execution is no longer checked by the PTO and can be completely omitted from a Declaration. Thus, the inadvertent date error to the Declaration does not provide a basis for requiring a new Declaration.

Turning now to the merits, in order to expedite issuance of a patent in this case, Applicants have amended Claim 1 to clarify the patentable features of the present invention over the cited references. Specifically, Applicants' Claim 1 recites a plasma source assembly including an outer shield, a dielectric chamber wall, and a helical coil provided between the outer shield and the dielectric chamber wall. Also recited is a coil insulator coupled to at least one coil turn of the helical coil and between adjacent coil turns of the helical coil, and a

cooling rod coupled to the coil insulator to hold the coil insulator and the at least one coil turn in a predetermined position thereby facilitating repeatable performance of the helical coil.

Thus, Applicants' Claim 1 has been amended to clarify that a coil insulator is coupled to a coil turn of the helical coil, and a cooling rod is coupled to the coil insulator to hold the coil insulator and the coil turn in a predetermined position. As described in the Background section of Applicants' specification, one problem with conventional ESRF plasma sources is the method and repeatability of mounting the helical coil. Specifically, the ESRF plasma source coil must be tuned to a particular frequency through a labor intensive process of adjusting the length of the coil. Once the coil is tuned, a change in coil position can adversely affect the tuning.¹ Thus, Applicants' invention as claimed in amended Claim 1 provides a structure for maintaining the helical coil in a predetermined position. Support for the amendments to Claim 1 is provided at least by paragraph [0035] of Applicants' specification. Therefore the amendments to Claim 1 do not raise an issue of new matter.

In contrast to the invention as claimed in Claim 1, none of the cited references disclose a cooling rod coupled to a coil insulator to hold the coil insulator and the at least one coil turn in a predetermined position. Specifically, Benzing et al., Ishimaru, Flamm and Miyamoto et al. do not disclose any details of a cooling mechanism for a helical coil. Only Boulos et al. and Hull are cited in the Official Action as teaching a cooling rod as originally recited in Claims 8-13.

Boulos et al. discloses an induction plasma torch system. As seen in Figure 1 of this reference, this system includes a coil 31 completely embedded within a torch body 2, which has fluid conduits 30 formed therein to carry cooling fluid throughout the torch body 2. However, the fluid conduits 30 cannot be interpreted as cooling rods. Moreover, the fluid

¹ See Applicants' specification at paragraph 12.

conduits are not coupled to insulators, and in now way holds the coil in a predetermined position as also required by amended Claim 1.

Hull discloses an induction plasma tube. As seen in Figure 1 of Hull, the induction plasma tube includes a coil 10 positioned around a cylindrical cavity 22 which is coupled to a water supply manifold 18 and a water exhaust manifold 20. As best seen in Figure 2, the water supply manifold 18 provides water to the cylindrical cavity through a water supply tube 36, and returns water to the cylindrical cavity through a water supply tube 32. However, these water supply tubes are not coupled to a coil insulator to hold the insulator and a coil of the helical coil in a predetermined position. Indeed, as seen in Figure 4, the hollow cylinder cylindrical cavity 22 does not provide any support for the coil 10, and the coil 10 does not include any coil insulator.

Thus, Applicants' Claim 1 as amended patentably defines over Boulos et al. and Hull. As Claims 2-13 depend from Claim 1, these claims also patentably define over the cited references. In this regard, Applicants note that Claims 8-13 recite detailed structural features of the cooling rod in relation to the helical coil, a plenum cooling plate, spacers, and coil insulators. While the outstanding Office Action has cited Boulos et al. and Hull as meeting these limitations, the Office Action does not provide any indication as to what portion of these cited references meet the detailed structure recited in Claims 8-13. Applicants respectfully request that if the cited references to Boulos et al. and Hull are maintained as meeting the limitations of Claims 8-13, and now the limitations of Claim 1, then specific citation be made to the areas of these cited references that teach each limitation recited in Claims 8-13.

Finally, Applicants have added Claims 41-44 to clarify the patentable features of the claimed invention over the cited references. In this regard, Applicants note that Claims 41-44 recite structural features included in the originally elected claims, but recited in a different

way to clarify the invention for the Examiner. Thus, Claims 41-44 are not directed to a separate invention. Moreover, these claims patentably define over the cited references for reasons similar to that discussed above.

Consequently, in view of the present amendment, no further issues are believed to be outstanding in the present application and the present application is believed to be in condition for formal allowance. An early and favorable action is therefore respectfully requested.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.

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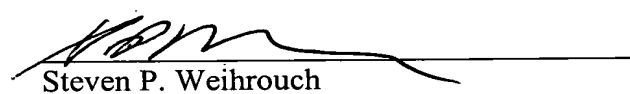
Tel: (703) 413-3000

Fax: (703) 413 -2220

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Steven P. Weihrouch
Attorney of Record
Registration No. 32,829

Edwin D. Garlepp
Registration No. 45,330